CHARGE NUMBER: 4009

PROJECT TITLE: Development Smoke Studies

PROJECT LEADER: B. L. Goodman

PERIOD COVERED: August, 1984

I. PROJECT SLOW (B. Demian)

Objectives:

Develop the technology to reduce or mask objectionable odor of sidestream smoke.
Develop a subjectively acceptable cigarette with reduced sidestream visibility.

Status:

Data analysis was completed for the sidestream smoke sensory evaluation test conducted in cooperation with the Internal Testing Group. The panel consisted of half smokers and half nonsmokers at the Operations Center. Each panelist rated four different cigarettes monadically for odor intensity, odor pleasantness, eye and nose/throat irritation, and acceptability. The nonsmokers rated all cigarettes as being more intense in sidestream and having more nose/throat irritation than did smokers. Smokers and nonsmokers also tended to rank the models differently, although none of the models was rated significantly better overall on any of the attributes. The nonsmokers found the MgO model less irritating to the eyes than the control Marlboro Lights. Although not significant, the nonsmokers found the control to be the least acceptable while the smokers rated it the highest. The flavor development panel did not see significant differences in the descriptors used for the O/C panel, but found the control Marlboro Lights to have more ammonia than the three sidestream prototypes.

A sidestream smoke sensory evaluation test was performed for a cigarette with a simulated leaf wrapper versus a Players control. The Flavor Development sidestream smoke panel evaluated the cigarettes in a paired comparison test, where none of the seven descriptors showed any statistically significant difference.

Method development for sidestream smoke nicotine determination is in progress. Experiments showed that Cambridge pad trapping was not efficient in collecting all the nicotine in the sidestream smoke of the Canadian Passport cigarette. Double Cambridge pads impregnated with sodium bisulfate performed better, but there is indication that some of the nicotine in sidestream still is not getting trapped. Other methods for nicotine collection are being investigated.

Analysis of average particle sizes was done by the Filtration Physics group on three Canadian cigarettes, our low sidestream prototypes, and a control Marlboro Lights. Only the Marlboro Lights was different from the others with its larger particle size.

Plans:

Complete the analysis of sidestream smoke from Passport cigarettes.

Continue the development of low visibility and improved sidestream odor cigarettes.

Continue the search for sidestream odor modifiers, including wrapper coating techniques.

II. COMPUTER APPLICATIONS (R. Greene)

Objective:

To write programs in BASIC and provide user assistance for the directorate at O/C.

Results:

A routine was added to the DATED control chart program to write an Inunit command file for MINITAB processing. The routine writes the file with a number in column 1 corresponding to the days since the initial date and writes all descriptors in the following columns. All columns are given names corresponding to the descriptor name.

A new program, AMINO-RSD, was released to the Basic Library. This program reads files and writes the RSD calculations for any number of groups of data. Documentation for the Basic Library program RSD was released as file BLIB:RSD.DOC. Further documentation was printed in the CAD Newsletter for RSD and AMINO-RSD. Documentation in the Newsletter was also provided for several command files which have been added to the system library in CMD:.

The first of several modifications was made to the DELIVERY program to help speed data entry. An additional development version was released to debug a new internal data representation which will eventually permit a reduction of storage file size and data retrieval times.

B. Goodman